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ABSTRACT

The Generic Skills project is a research study being conducted in Canada to determine those overt and covert behaviors which are fundamental to the performance of many tasks and sub-tasks performed in a wide range of occupations. Data aimed at determining the needs for adult education and training have been obtained in two surveys. In the first, 340 workers and their 340 supervisors in 27 different occupations answered questions related to mathematics and communications skills. In the second survey, 490 workers and 480 supervisors in 37 occupations, 18 of which were repeated from the first survey, completed questions related to mathematics, communications, interpersonal, and reasoning skills. From the data, certain core skill requirements for work performance appear evident. All occupations require reading and listening at least the literal level of comprehension--reading forms and writing words/phrases on forms. Most of the skills of one-to-one conversation are common requirements and all occupations require instructional communication, the ability to demonstrate and instruct. Complete data are presented in tabular form and conclusions and implications are discussed. (TO)

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READING SKILLS - WHAT READING SKILLS?

The Implications of Normatively Derived Reading Skills, in Certain Occupations, for Reading Standards

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Introduction

The literature of research in reading contains almost countless studies, models, theories, and strategies dealing with the various problems of what to teach, how to teach, how to test reading skills and how to determine readability levels. The literature embraces many diverse areas including comparative studies in the teaching of reading, special population studies such as the handicapped and ethnic groups, language development studies for those acquiring a new language, and basic research studies dealing mainly with various physical phenomena in reading as well as with verbal learning and information processing.

The aim of this paper is to examine the communications skills which are actually used in the performance of occupational work and to briefly comment on the implications of these skills insofar as they affect reading strategies and standards.

Paper prepared for presentation to the World Reading Congress in Vienna, August 13, 1974.

CS 001 298

The term "communications skills" in this paper includes the skills of reading, writing, talking and listening. Excluded from this paper are those interpersonal skills which are also used in communications, such as eye contact, body posture, role distance and other verbal and non-verbal attending skills.

Generic Skills Research

The Generic Skills project is a research study being carried out in Canada to determine those overt and covert behaviors which are fundamental to the performance of many tasks and sub-tasks carried out in a wide range of occupations. Generic Skills include many of the concepts and skills generally referred to as mathematics skills, communications skills, reasoning skills, interpersonal skills, procedural skills and motor-sensory skills. The study is aimed at the needs for adult education and training.

Complete details of the study are included in the publications by Smith (1973a, 1973b), and by Smith, Kawula, Tippett, Curtis and Depew (1974).

Communications Skills Used by Selected Occupations

Data have been obtained in two surveys. In the first survey, which was carried out in urban and rural areas of the province of Saskatchewan, data were obtained from 340 workers, and, independently, from their 340 supervisors, in 27 different occupations. The occupations ranged from the aide or helper level up to technicians and covered a number of occupational families such as office workers, construction

trades and transportation operators. The 27 occupations surveyed represent approximately 25 percent of Canada's labour force (excluding technical and professional).

The second survey was carried out in six of Canada's ten provinces. Data were obtained from 490 workers and 480 supervisors in 37 occupations (18 occupations repeated from the first survey).

The first survey included 115 questions directly related to mathematics and communications skills. The second survey contained 226 questions related to mathematics, communications, interpersonal and reasoning skills.

The communications skills used, as indicated by the data obtained in the two surveys, are shown in Plates 1 and 2.

There is appreciable agreement between the workers' and supervisors' responses. The questions were concrete rather than abstract and workmen's style of language was used to ensure a clear understanding of the intent of each question. This agreement clearly indicates that supervisors know what skills are actually used by their subordinates.

Despite the fact that the second survey included only 18 occupations in common with the first survey, there is marked agreement in skill usage between the two surveys. This indicates that the skills identified are generic to many occupations.

As of the time of writing this paper, the results of the two surveys have not been integrated. However, the data from the second survey have been analyzed to determine the skills requirements by each occupation and the percentages (of the 37 occupations) who use each skill.

SKILLS	PHASE I 27 OCCUPATIONS N - 680 SASKATCHEWAN			PHASE II 37 OCCUPATIONS N - 970 CANADA		
	a	b	c	a	b	c
READING COMPREHENSION						
Literal	94%	94%	27/27	91%	96%	37/37
Interpretive	64%	61%	27/27	70%	73%	20/37
Evaluative				21%	27%	4/37
TYPES OF READING						
Forms	89%	89%	27/27	82%	82%	37/37
Notes	91%	93%	27/27	87%	84%	34/37
Letters				65%	67%	32/37
Memos				82%	83%	34/37
Books and Manuals	85%	85%	27/27	80%	81%	36/37
Charts and Tables	61%	65%	21/27	53%	56%	23/37
Graphs	22%	29%	5/27	18%	20%	6/37
Scales	64%	64%	24/27	49%	54%	31/37
Scale Drawings	40%	37%	14/27	46%	44%	16/37
Assembly Drawings	-	-	-	40%	42%	11/37
Schematic Drawings	-	-	-	33%	33%	9/37
WRITING						
External Letters	44%	46%	23/27	21%	20%	9/37
Form Letters				14%	12%	6/37
Single Paragraph Letters				9%	10%	5/37
Internal Memos	70%	71%	24/27	27%	25%	13/37
Short Notes				45%	44%	19/37
Notes from Conversation				45%	44%	19/37
Forms: Phrases	83%	82%	27/27	72%	76%	37/37
Sentences	57%	57%	26/27	34%	41%	17/37
Paragraphs	41%	45%	25/27	19%	26%	7/37
Reports: Information	46%	49%	17/27	22%	23%	12/37
Recommendation	26%	30%	10/27	20%	21%	5/37
Technical	10%	13%	0/27	14%	13%	2/37

Codes: a - Percentage of workers who said they use the skill.
b - Percentage of supervisors who said that the skill is used by the workers.
c - Ratio of occupations who use the skill.

PLATE 1 - READING and WRITING SKILLS

SKILLS	PHASE I 27 OCCUPATIONS N - 680 SASKATCHEWAN			PHASE II 37 OCCUPATIONS N - 970 CANADA		
	a	b	c	a	b	c
LISTENING COMPREHENSION						
Literal	99%	99%	27/27	100%	100%	37/37
Interpretive	73%	70%	26/27	86%	87%	33/37
Evaluative				25%	28%	7/37
TALKING (ONE TO ONE) COMPREHENSION						
Give Job Directions	83%	78%	27/27	80%	75%	37/37
Give Job Information	96%	92%	27/27	94%	90%	37/37
Ask Job Questions	97%	92%	27/27	95%	94%	37/37
Debate with: Fellow Workers	91%	89%	27/27	80%	73%	37/37
Supervisors	94%	94%	27/27	81%	84%	36/37
Customers	-	-	-	54%	47%	20/37
Persuasive Conversation	-	-	-	6%	5%	2/37
Diverting Conversation	-	-	-	71%	65%	33/37
GROUP DISCUSSIONS						
Give Directions/Information	44%	49%	20/27	38%	30%	7/37
Give Persuasive Talks	-	-	-	5%	5%	1/37
Participate	-	-	-	40%	42%	11/37
Control	-	-	-	11%	15%	2/37
TALKS TO AUDIENCE						
Factual	6%	12%	-	9%	7%	2/37
Persuasive	-	-	-	6%	5%	2/37
INTERVIEW/COUNSEL						
Information Centered	-	-	-	15%	14%	4/37
Problem Centered	-	-	-	27%	26%	8/37
GIVE ON JOB						
Instruction	-	-	-	77%	71%	36/37
Demonstration	-	-	-	76%	72%	37/37

Codes: a - Percentage of workers who said they use the skill.
b - Percentage of supervisors who said that the skill is used by the workers.
c - Ratio of occupations who use the skill.

PLATE 2 - LISTENING AND TALKING SKILLS

The graphs in Plates 3 and 4 show the percentages of occupations who use various communications skills for task performance.

The matrix in Chart 1 shows selected communications skills required by the 37 occupations.

Observations from Plates 3 and 4

The information derived in these studies should be considered in the context of a much larger array of skills than those which the author has called "communications" skills. If the study had been concentrated on only the skill areas discussed in this paper, then it is probable that more discrete treatment would have been made. No attempt, for example, was made to prove or disprove the levels of reading comprehension suggested by Davis (1941), by Bloom et al (1956), or by Kingston, (1961). Instead data were obtained on skills actually used by occupational workers rather than on the number and level of skills held by the workers in the occupations.

Certain core skill requirements for work performance appear evident. All occupations read and listen at the literal level of comprehension, read forms and write words/phrases on forms. Most of the skills of one-to-one conversation (giving job directions, giving job information and obtaining information by asking questions) are common requirements. The requirement for all occupations to provide instructional communication (demonstrate and instruct) is intriguing, particularly in view of the fact that the survey included some rather unsophisticated occupations such as a Construction Labourer.

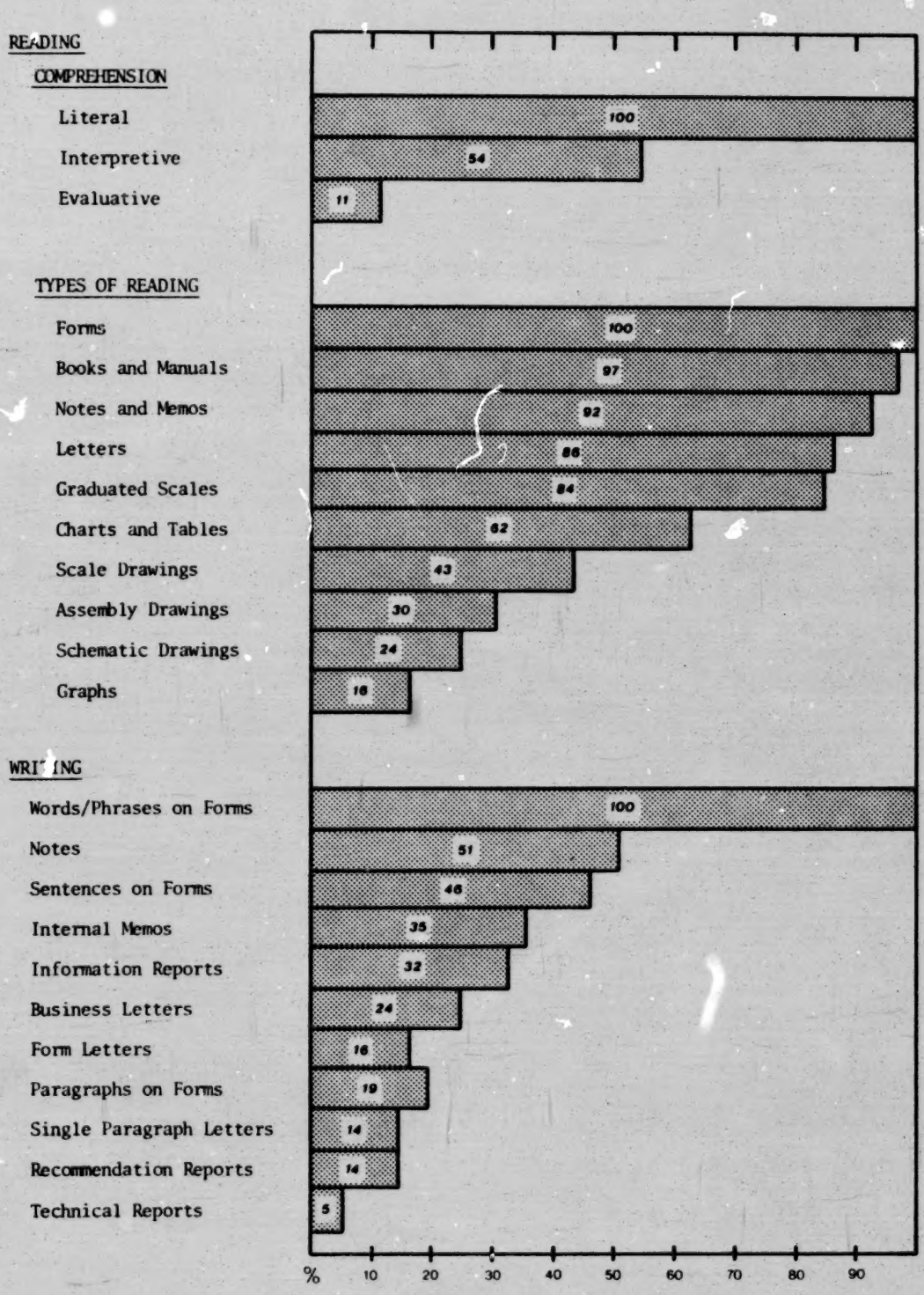

PLATE 3 - PERCENTAGE OF 37 OCCUPATIONS USING READING AND WRITING SKILLS

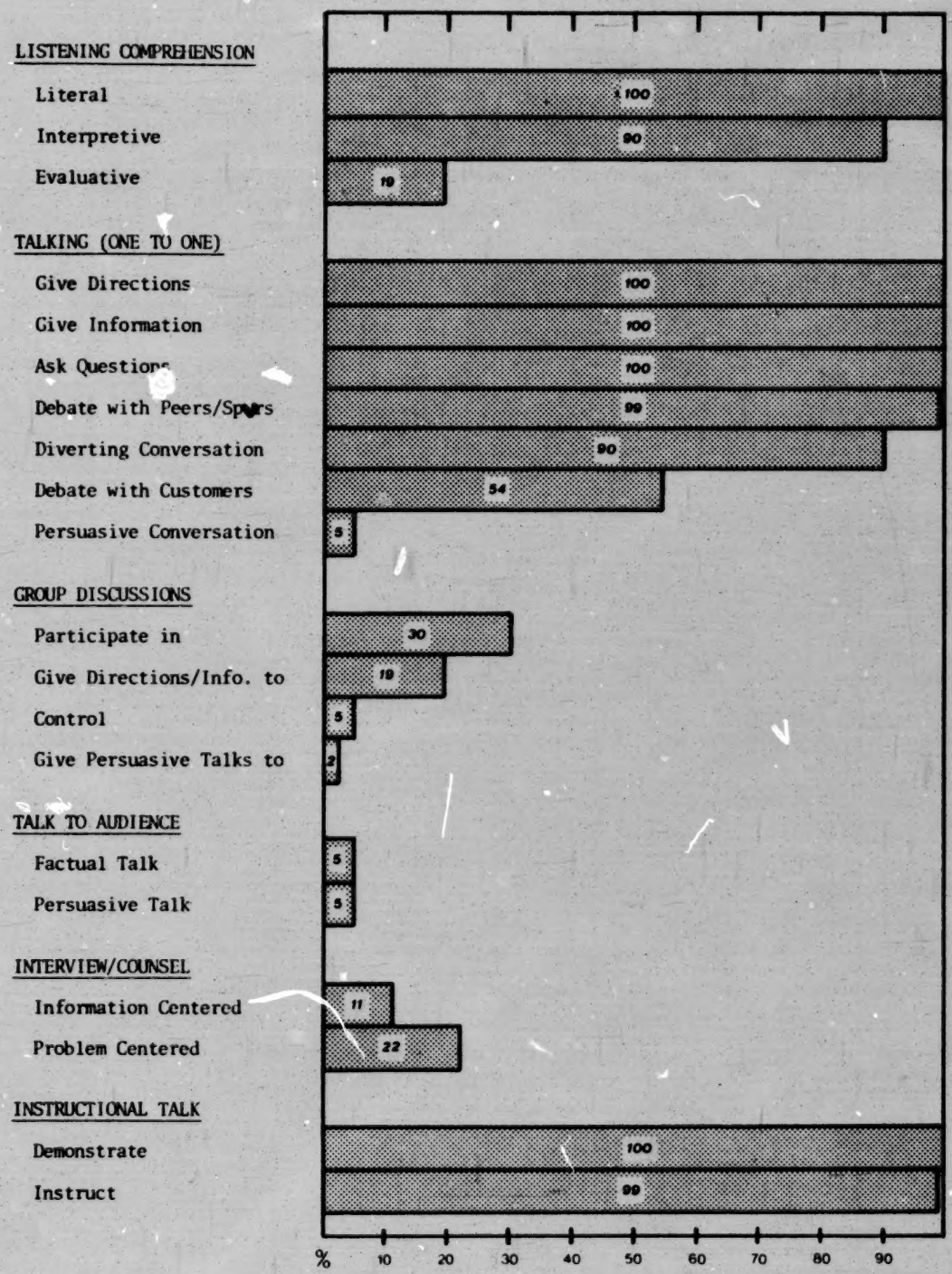

PLATE 4 - PERCENTAGE OF 37 OCCUPATIONS USING LISTENING AND TALKING SKILLS

CHART 1

SELECTED COMMUNICATIONS SKILLS

* - skill required
O - skill optional

		Policeman	Draftsman	Insurance Salesman	Farmer	Packaging Machine Mech.	Sheet Metal Worker	Radio & TV Serviceman	Lineman	Sales Representative	Electrician	Motor Vehicle Mech.	Hardware Sales Person	Nursing Assistant	Small Engine Mech.	Cook	Accountant Clerk	Sales Clerk	Painter	Nurse Aide	Bookkeeping Clerk	Bookkeeping, Clerical	Truck Driver	Carpenter	Machinist	Taxi Driver	Metal Assembler	Secretary	Janitor	Receiving Clerk	Construction Labourer	Cashier	Clerk Typist	Welder	Driver Salesman	Storeman	Heavy Equip. Operator	Waiter, Formal Service
READING	Literal Comprehension	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Interpretive Comprehension	*	*	*	*	*	*	*		O	*	*	*	*	*	*	*	O	*	*	*	*	*	O	O			*					O	O	*			
	Evaluative Comprehension				*	*					O	O					*	O	O		*				O			O										
	Forms	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Notes, Letters, Memos	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*					
	Charts, Tables	*	*	*	*	*	*	*	*	*	*	*	*	*	*	O	*	*	O		*	*	O	*	*	*	*	O					O					
	Books, Manuals	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Roman Numerals	*	*	*	O	*	*		*	*	O	O	*	*			*		O	*					O		*	O				O	O				
WRITING	Phrases on Forms	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Sentences on Forms	*	*	*	*	*	*	*		*	O	O	*	*			*				*	*	*		O	O			*			*		*			
	Paragraphs on Forms	*	*	*		*	O			*	O		O	*			*		*		*			O	O			O				O					
	Short Notes	*	*	*				*	*	*	O	O	O	*		*	*	*	*	*	*	*	*		*	*		*				*					
	Form Letters	*		*									O				*				*	*			O			*				O					
	Single Paragraph Letters										O					*	*	*			*	O				*		O				O					
	Internal Memos	*	*	*				*			O		*				*	O	O		*	*	*		O	*		*				*	O				
	Business Letters	*	*	*	*					*	O		O				*	O			*	*						*					O				
	Information Reports	*		*	*	*	O	*	*	*		O		*			*	O	O		*	*	O			*	O	O				O					
	Recommendation Reports	*		*		*	O		*	*		O							O																		
	Technical Reports	*		*			O			O									O																		
LISTENING	Literal Comprehension	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Interpretive Comprehension	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			*	*	*		*	*	*	*			
	Evaluative Comprehension	*		*		*		O		*	O	*			O	*		O	O		O					*		O				*					
TALKING	Give Information/Directions	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Ask Questions	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Debate (Express Point of View)	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Diverting Conversation	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	O	*		*	O	*	*	*	*	O	*	*	*	*
	Persuasive Conversation	*		*						O																												
GROUP TALKING	Participate In	*	O	*			O	*	*	*	O	*	O	*	O	*		*	O	O			*	O	O		O						O	*				
	Give Directions/Information to	*	O	*		*	O		*	*	O	O	O	*	O	O		O	O	O						*	O						O					
	Control Group	*		*						O																												
	Give Persuasive Talks to	O		*																																		
TALK TO AUDIENCE	Factual Talk	*		*						O																												
	Persuasive Talk	*		*						O																												
INTERVIEW/ COUNSEL	Information Centered	*		*	*					O				*														O									
	Problem Centered	*	*	*	*		*			*			*						O	*							O										
INSTRUCT	Demonstrate	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Instruct	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	O	*	*	*	*	*

The evidence about the comprehension levels is most striking! 90% listen at the interpretive level and 54% read at that level; but only 19% and 11% respectively listen and read at the evaluation level of comprehension.

Only 30% of the occupations are required to participate in group discussions, 5% give formal talks and only 11 to 22% use interviewing or counselling communications. (Data are now being reviewed from a third survey of first line foremen/supervisors and these latter skill requirements appear to be required at that level.)

The data on types of reading include skills which are, perhaps, traditionally considered mathematics skills. Whether or not these skills belong to one subject and/or another, the evidence should provide some indication of the types of reading performed and necessarily affect our instructional strategies.

Implications of the Derived Reading Skills

Despite some lack of comprehensiveness, a wealth of information, which is appropriate to adult skill development in pre-employment training, has been obtained. Not everyone will, perhaps fortunately, agree on the further research and development that should be carried out as a result of this evidence.

The following conclusions appear pertinent and relevant to adult skill development:

1. The data on reading and listening suggest that increased emphasis should be given to a solid grounding in the basic literal and

interpretive levels of comprehension and, perhaps, less attention to the writer's tone, style, mood, imagery, metric patterns and other skills normally associated with evaluative comprehension.

2. It is neither relevant nor appropriate to teach rigorous sentence analysis, compound sentence structure, and elaborate paragraph structure to the 54% of the working force whose only writing consists of short notes and words/figures/phrases on forms, unless the adults wish to acquire these higher level skills for reasons other than pre-employment development.

3. It would be appropriate to have adult students develop reading skills using business books and manuals instead of the literature commonly held in school libraries.

4. Adult students should systematically be taught effective questioning, listening and task oriented conversational behaviors.

5. All adults taking pre-employment training should receive instruction in the elementary techniques of instructional communications.

6. Reading tests should be devised, which measure the ability to read business forms and manuals, and used for pre-employment training/ testing in lieu of the various standard reading comprehension tests.

7. Writing and talking tests should also be developed which are criterion referenced to the communications skills used in carrying out occupational tasks.

Further Generic Skills Research

These studies are being continued, as follows:

1. Individualized skill packages are being developed for each of the identified generic skills. These packages will contain diagnostic and prescription tests to determine entry skills and to prescribe necessary learning activities. These packages will be criterion referenced to instructional objectives and to learning media. The packages will also contain mastery tests to measure skill achievement.

2. Additional surveys will be carried out to identify a broader range of generic skills and to determine skills used in an expanded range of occupations.

3. Profiles of skill requirements for each occupation and clusters of skills (core skills, occupational families and career ladders) are being developed to supplement the traditional grade levels used for pre-employment and job employment practices.

Other Needed Research

The information obtained to date in the Generic Skills studies has possibly suggested more questions than conclusions. The following lines of research are offered as possible ways to obtain solid information needed by those who are involved in developing and teaching communication strategies:

1. Reading, writing and talking standard tests, normatively derived, should be developed and criterion referenced to the communications skills

actually used in carrying out occupational tasks. This seems particularly important, for both the emerging countries which have low literacy levels and for the disadvantaged populations of the more industrialized nations.

2. Studies should be carried out to examine the communications skills used outside the work environment. What skills are used by housewives? Do we know what communications skills are used in various community groups and associations? Perhaps the orientation in teaching strategies and in testing has been to "good" literature comprehension and appreciation and not enough to the more mundane requirements of reading newspapers, periodicals, sales brochures and the like, which make up so much of the normal patterns of reading.

3. There appears to be an obvious need to carry out empirical studies to determine the relevance of the processes of skills thought to be involved in reading comprehension. Such a need was also identified by Davis (1971).

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